

## **II. Amendments to the Drawings**

The Examiner has objected to the drawings. The Examiner has stated that Figures 2A, 2B, and 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. Examiner has required that corrected drawings in compliance with 37 C.F.R. 1.121(d) be submitted.

Therefore, two replacement sheets of drawings are included herein. They include changes to Figures 2A, 2B, and 4, wherein each now includes a legend designating each of these Figures as prior art. Replacement sheet 1/4 includes Figures 1, 2A, and 2B, and replaces the originally filed sheet including these Figures. Replacement sheet 3/4 includes Figures 4 and 5, and replaces the originally filed sheet including these figures. Entry of these amendments is respectfully requested.

### III. Remarks

Reconsideration and re-examination of this application in view of the above amendments and the following remarks is herein respectfully requested.

Claims 1-11 are pending in the application. Claim 1 has been amended. Support for the above amendment is found in Applicant's specification as originally filed.

#### *Claim Rejections – 35 U.S.C. §112*

Claims 1-11 have been rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

Examiner has stated that the specification as originally filed lacks an adequate written description of the invention. Examiner has further stated that "[t]here is no basis for the recitation 'an angle between about 15 and 75 degrees' in set forth in claim 1." Applicant respectfully traverses this rejection.

Applicant respectfully directs Examiner's attention to Figure 3C of the original specification, which is duplicated below for convenience of discussion, as well as paragraphs [0025] and [0026] of the specification as originally filed.

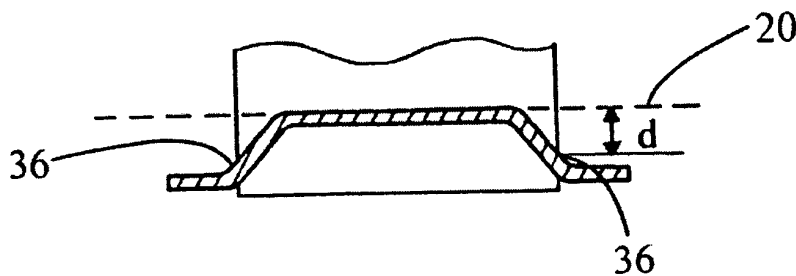


Fig. 3C

Figure 3C shows a separation distance (d) between the terminal ends 62 of the end sections 58 and the plane of the planar portion 56 (See Figure 5 and paragraph [0025]). Paragraph [0025] states, in the second-to-last sentence, that the separation distance (d) may be in the range from about 2 mm to about 20 mm. Paragraph [0026] states that the end sections 58 are about 2.5 mm to 28 mm long. As shown above, part of the dashed line showing the line of deformation 20 can be combined with the distance (d) and the end section 58 of the slot 52 to form a right triangle. Claim 1 states that each step portion extends laterally at an angle between about 15 and 75 degrees from the plane of the base portion. This angle is the angle opposite distance (d) in Figure 3C (shown above). The sine of an angle is equal to the length of the opposite side divided by the length of the hypotenuse. Therefore, the sine of the angle of Claim 1 [hereinafter  $\alpha$ ] is the distance (d) divided by the length of the end section 58:

$$\sin \alpha = \frac{(d)}{\text{length}_{\text{end-section}}}$$

The originally filed specification gives dimension ranges for (d) and dimension ranges for the length of the end section 58, which can be substituted into the above equation:

$$\sin \alpha = \frac{2 - 20\text{mm}}{2.5 - 28\text{mm}}$$

Solving for the above equation, the range of the angle  $\alpha$  is about 4.1 degrees to about 89.9 degrees. Therefore, the range of the angle of Claim 1 (15 to 75 degrees) is well within the range that a person having ordinary skill in the art would be taught from the specification as originally filed.

Because the angle of Claim 1 can be calculated based on the ranges of lengths given in the original specification, Applicant respectfully submits that the angle of Claim 1 is an inherent feature of the original specification. Applicant respectfully directs Examiner to MPEP § 2163.07(a), which states in part:

By disclosing in a patent application a device that inherently performs a function or has a property, operates according to a theory or has an advantage, a patent application necessarily discloses that function, theory, or advantage, even though it says nothing explicit concerning it. The application may later be amended to recite the function, theory or advantage without introducing prohibited new matter. *In re Reynolds*, 443 F.2d 384, 170 USPQ 94, (CCPA 1971); *In re Smythe*, 480 F.2d 1376, 178 USPQ 279 (CCPA 1973).

Since the angle range claimed in the previously amended Claim 1 merely recites an inherent feature of the original specification, Applicant respectfully submits that there is support for Claim 1 in the specification as originally filed.

For at least the foregoing reasons, Applicant respectfully requests the Examiner to reconsider and withdraw the 35 U.S.C. § 112(a) rejection with respect to Claims 1-11, and allow these claims.

#### *Claim Rejections - 35 U.S.C. §102*

Claims 1, 2 and 7-11 have been rejected under 35 U.S.C. 102(a) as being anticipated by U.S. Patent No. 1,730,470 to Modine (Modine '470), U.S. Patent No. 1,893,521 to Modine (Modine '521) or U.S. Patent No. 5,797,448 to Hughes et al. (Hughes).



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Independent Claim 1, from which Claims 2 and 7-11 depend, is directed toward a header for a heat exchanger that has a substantially planar base portion and a pair of step portions that extend laterally at an angle between about 15 and 75 degrees as a straight segment from the plane of the base portion. The header of Claim 1 has a plurality of substantially parallel slots spaced apart along the length of the header, with each slot extending across the width of the base portion and into the step portions. Each slot is engaged with a single tube such that the header structurally supports the respective tube. Furthermore, Claim 1 is currently amended to state that the header serves as a manifold connecting in fluid communication an end of a tube to an end of at least one other tube.

Modine '470 shows a tube for a heat exchanger engaged with plate fins 30, wherein the plate fins have trapezoidal profile (see Figure 9). Modine '521 shows a plurality of fins 16 intersected by fluid tubes or passages 15 (see Figure 4). Hughes shows a plurality of plate fins (see Figures 1 and 2) that include indentations and corrugations (col. 1, line 23).

Modine '470, Modine '521, and Hughes each fail to show a header as called for in Claim 1. Examiner has stated that the recitation of a "header" does not structurally define over the fins of the respective art. Claim 1 is currently amended to state that the header serves as a manifold connecting in fluid communication an end of a tube to an end of at least one other tube of the heat exchanger. The fins in Modine '470, Modine '521, and Hughes each fail to show a header as described in Claim 1 that serves as a connecting in fluid communication an end of a tube to an end of at least one other tube of the heat exchanger. The fins of the cited references are intersected by the tubes, but

they are not in fluid communication with the fluid passing through the tubes. The fins in these references do not serve as a manifold connecting an end of a tube to an end of at least one other tube of the heat exchanger, which is a configuration that inherently provides for fluid communication between the header and the fluid of the tubes. Therefore, Applicant respectfully submits that the currently amended Claim 1 structurally distinguishes the header of the present invention from the fins of the cited references. Thus, the cited references fail to teach each and every element of the claimed invention, and the invention is not anticipated by the cited references.

For at least the foregoing reasons, Applicant respectfully requests that the Examiner reconsider and withdraw the 35 U.S.C. § 102(a) rejection with respect to Claim 1, and Claims 2 and 7-11 dependent therefrom, and allow these claims.

*Claim Rejections - 35 U.S.C. §103(a)*

Claims 3-6 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Modine '470, Modine '521, or Hughes.

Claims 3-6 depend from Claim 1, which Applicant respectfully submits is patentable for the reasons given above. Therefore, Applicant respectfully submits that claims depending from Claim 1, such as Claims 3-6, are also patentable, for at least these reasons.

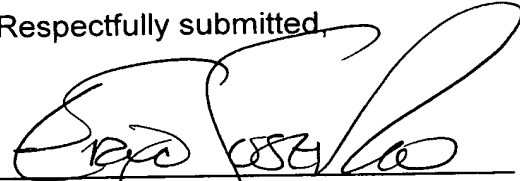
*Conclusion*

In view of the above amendments and remarks, it is respectfully submitted that the present form of the claims (Claims 1-11) are patentably distinguishable over the art of record and that this application is now in condition for allowance. Such action is respectfully requested.

Dated: \_\_\_\_\_

9/20/06

Respectfully submitted,



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Attachments: Replacement Sheets of Drawings (Figs 2A, 2B and 4), pages 1/4 and 3/4